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Filing Date	August 5, 2004
First Named Inventor	Patrick W. Bixenman
Art Unit	3672
Examiner Name	Tsay, Frank
Attorney Docket Number	68.0414

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
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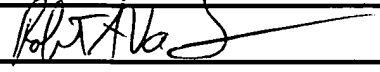
Signature			
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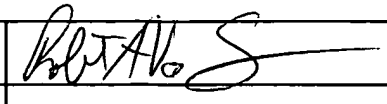
Signature			
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Patrick W. Bixenman	§	Group Art Unit: 3672
Serial No.: 10/710,833	§	Examiner: Tsay, Frank
Filed: August 5, 2004	§	
For: A Conduit Having a Cable Therein	§	Atty Docket: 68.0414

Assistant Commissioner
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May 8, 2008 — Robert A. Van Someren
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Sir:

REPLY BRIEF PURSUANT TO 37 C.F.R. §§ 41.41

This Reply Brief is being filed in response to the Examiner's Answer mailed on March 10, 2008.

1. **REAL PARTY IN INTEREST**

The real party in interest is Schlumberger Technology Corporation, the Assignee of the above-referenced application by virtue of the Assignment recorded at reel 014960, frame 0125.

2. **RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellant's legal representative in this Appeal. Schlumberger Technology

Corporation, the Assignee of the above-referenced application as evidenced by the documents listed above, will be directly affected by the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1-16 and 25-32 stand finally rejected by the Examiner as noted in the Office Action dated April 9, 2007. Claims 17-24 were previously withdrawn from consideration as directed to a nonelected species. The rejection of claims 1-16 and 25-32 is appealed.

4. STATUS OF AMENDMENTS

The February 12, 2007 Amendment, submitted prior to the Examiner's Final Rejection mailed April 9, 2007, was entered by the Examiner.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

a.) Independent Claim 1

Independent claim 1 is directed to a device for use in a wellbore comprising a conduit 102, 202, 302 and a cable 100, 200, 300 inserted into the conduit. The cable 100, 200, 300 is placed in the conduit 102, 202, 302 in a manner creating cable buckles that contact an interior surface of the conduit 102, 202, 302 at a plurality of locations substantially along the entire length of the conduit 102, 202, 302. The placement of the cable into the conduit is done in a manner providing controlled, uniform buckling of the cable 100, 200, 300 so that the cable is uniformly supported along the length of the conduit. (See page 7, line 20, through page 8, line 21, paragraphs 029, 030, 031). The uniform buckling and uniform support is achieved by placing the cable 100, 200, 300 into conduit 102, 202, 302 at a surface location prior to deployment of the conduit into the wellbore. The uniform buckling can be achieved by several techniques, including pumping techniques (see page 7, lines 26-29, paragraphs 029), unspooling techniques (see page 8, lines 9-13, paragraphs 030), oscillating reel techniques (see page 8, lines 23-25, paragraph 032), and manufacturing techniques (see page 9, lines 3-7, paragraphs 033).

b.) Independent Claim 10

Independent claim 10 is directed to an electric submersible pumping system comprising a length of conduit which can be coiled tubing 602. The conduit/coiled tubing 602 supports a pump and an electric motor of electric submersible pump 660. An electric cable 600 is disposed within conduit/coiled tubing 602 to supply power to electric submersible pump 660. (See page 9, line 24, through page 10, line 3, paragraph 035). The electric cable 600 is arranged in an arcuate path along substantially the entire length of conduit/coiled tubing 602 so that the electric cable buckles and contacts the conduit/coiled tubing 602 at a plurality of uniformly spaced locations to prevent longitudinal movement of electric cable 600 within the conduit/coiled tubing 602. The plurality of locations is achieved by placing the electric cable into the conduit at a surface location. (See page 10, lines 8-13, paragraph 035; see also page 7, line 20, through page 8, line 21, paragraphs 029, 030, 031).

c.) Independent Claim 14

Independent claim 14 is directed to a method of installing a cable into a conduit while located above the wellhead or, in other words, at a surface location. Initially a first length of cable 100, 200, 300 is inserted into a length of conduit 102, 202, 302 that is of substantially the same length as the first length of cable. Buckling of the cable is then created by inserting a second length of the cable 100, 200, 300 into the same length of conduit 102, 202, 302. The cable 100, 200, 300 buckles at a plurality of locations along substantially the entire length of the conduit 102, 202, 302 to prevent longitudinal movement of the cable within the conduit. The method further comprises controlling the uniform buckling to uniformly support the cable 100, 200, 300 along the length of the conduit 102, 202, 302. (See page 7, line 20, through page 8, line 21, paragraphs 029, 030, 031).

d.) Independent Claim 25

Independent claim 25 is directed to another embodiment of installing a cable into a conduit. In this method, the uniform buckling of the internal cable is achieved during fabrication of the conduit. Initially, a strip of metal 503 is rolled to create a length of tubular material 502. A length of cable 500 is then inserted into tubular material 502 in a manner that buckles the cable 500 to create uniform contacts along the interior surface of the tubular material 502, thereby preventing longitudinal movement of the cable 500 within tubular material 502. The uniform support is provided by controlling the positioning of the plurality of contact locations. Once uniform buckling of the cable 500 within the tubular material 502 is achieved, the tubular material 502 is sealed to create a conduit having a uniformly buckled internal cable. (See page 9, lines 3-23, paragraphs 033, 034).

e.) Independent Claim 27

Independent claim 27 is directed to a method of installing a cable 100, 200, 300 into a conduit 102, 202, 302 prior to deploying the conduit into a well. A cable 100, 200, 300 having a greater length than the conduit 102, 202, 302 is initially inserted into the conduit. The longer cable 100, 200, 300 is distributed substantially evenly throughout the conduit. This allows the formation of uniform contacts between the cable 100, 200, 300 and the conduit 102, 202, 302 for uniform support of the cable within the conduit. (See page 7, line 20, through page 8, line 21, paragraphs 029, 030, 031).

f.) Independent Claim 32

Independent claim 32 is directed to a conduit having a uniformly supported internal cable. A cable 100, 200, 300, having a greater length than the conduit 102, 202, 302, is inserted into the conduit. The longer cable 100, 200, 300 is distributed substantially evenly throughout the conduit. This allows the formation of uniform contacts between the cable 100, 200, 300 and the conduit 102, 202, 302 to uniformly support of the cable along the length of the conduit. (See page 7, line 20, through page 8, line 21, paragraphs 029, 030, 031).

6. **GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

a.) Whether claims 1, 2, 4, 5, 8, 9, 14 and 25-32 are unpatentable under 35 U.S.C. § 102(b) as anticipated by the Moore reference, U.S. Patent No: 6,148,925.

b.) Whether claim 3 is unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the Denison et al. reference, U.S. Patent No: 4,095,865.

c.) Whether claims 6, 7, 10, 12, 13, 15 and 16 are unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the McHugh et al. reference, U.S. Patent No: 5,954,136.

d.) Whether claim 11 is unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the McHugh et al. reference and further in view of the Denison et al. reference.

7. **ARGUMENT IN RESPONSE TO THE EXAMINER'S ANSWER**

a.) Rejection of claims 1, 2, 4, 5, 8, 9, 14 and 25-32 as unpatentable under 35 U.S.C. § 102(b) as anticipated by the Moore reference, U.S. Patent No: 6,148,925.

- Claims 1, 2, 4, 5, 8, 9, 14 and 25-32

Independent claims 1, 14, 25, 27, 32 and dependent claims 2, 4, 5, 8, 9, 26, 28-31 were improperly rejected as anticipated by the Moore reference. The reference fails to disclose elements of the subject claims.

In the Examiner's Answer, page 4, the Examiner discusses the Moore reference by stating:

> "The language 'wherein the cable is uniformly supported along the length of the conduit' is anticipated by the conductor 36 maintains helical shape inside the tubing 34 due to its own **inherent memory**, which implies to its original uniformity of the helical shape after tension in the cable is released (col. 3, line 62-col. 4, line 17)."

However, the uniform support is not anticipated by the Moore reference, which describes a conventional system that does not provide for uniformly supporting the cable along the length of the conduit. In fact, the Moore reference is discussed in the BACKGROUND section of the present application as an example of conventional power cable inside coiled tubing systems that fail to provide uniform support. (See present application, page 2, paragraph 05). Furthermore, at column 3, line 62-column 4, line 17 of the Moore reference, a wire line 10 is described as formed of coiled tubing 34 and a conductor 36 that extends through the coiled tubing. The conductor 36 maintains a helical shape inside the tubing 34 due to its own inherent memory. However, this inherent helical shape is described as a problem that must be overcome or the conductor cannot properly fall by gravity through the coiled tubing. (See column 4, lines 12-13).

The tendency of the Moore conductor to form this helical shape cannot be construed as disclosing or teaching the presently claimed uniform support along the length of the conduit. In fact, the BACKGROUND section of the present application specifically describes the Moore reference and similar references as not being able to provide uniform buckling which, in turn, prevents the provision of uniform support. The inability of the Moore system and similar systems to provide uniform support is the exact problem overcome by the present invention as set forth in the subject claims.

In the Examiner's Answer, page 7, the Examiner further alleges the Moore reference discloses uniform buckling and anticipates the uniform support elements recited in the presently pending claims. However, the Moore reference provides no disclosure or teaching related to uniform buckling or uniform support. On page 7 of the Examiner's Answer, the Examiner further relies on the Moore reference by stating:

> "...the portion of Moore to which applicant is referring, column 4, lines 65 through column 5, line 9 is not the portion of the reference on which the rejection was based. The section of Moore, column 3, line 62-column 4, line 54 clearly says that the wireline is feed into the well where the wireline is formed of coiled tubing 34 and a conductor 36 thus indicating that the conductor or cable was placed in the tubing prior to being inserted into the wellbore.
>
> Secondly, column 3, line 62-column 4, line 8 clearly indicates that the conductor is held in its helical shape by a frictional engagement with the inner wall of the tubing... "

However, this assertion is incorrect. The passage cited by the Examiner does not indicate the conductor or cable was fed into the tubing prior to being inserted into the wellbore. Furthermore, the Moore passage provides no teaching regarding uniform support. As discussed in great detail throughout the BACKGROUND (and other portions of the specification) of the present application, conventional power cable inside coiled tubing systems, such as the Moore system, use buckling of the cable to frictionally restrain the cable. However, as further described throughout the present specification, such conventional techniques were not capable of providing the uniform support as recited in the subject claims.

In the Examiner's Answer, page 8, the Examiner further states: "it would be reasonable to conclude that after the conductor 36 is completely inserted into the tubing and the wire-in-tube is rewound into reel, the helical buckles in the conductor would have produced uniform contacts along the internal surface of the coiled tubing..." (emphasis added). However, Appellant respectfully submits this assertion is, in fact, not reasonable in light of the state-of-the-art at the time of the present invention as established by the numerous prior art examples and as described throughout the BACKGROUND section of the present application. In fact, the Moore system and similar conventional systems were not able to solve the problem of providing uniform support of a cable along the length of a conduit. Accordingly, the assertion of the Examiner improperly relies on the teachings/disclosure of the present application and is contrary to what was known and taught in the art at the time of the present invention. The buckling described in conventional systems did not have the structure to provide uniform support which is a specific recited element in the pending independent claims.

The Moore reference fails to disclose or suggest elements of the subject independent claims, including the recitation of uniform support. As presented in this Reply and in the previously filed Appeal Brief, the Moore reference fails to support the rejection under 35 USC 102(b) and the rejection should be withdrawn.

Claims 2, 4, 5, 8, 9, 26 and 28-31 ultimately depend from one of the subject independent claims. Accordingly, these dependent claims are patentable over the Moore reference for the reasons discussed above as well as for additional, unique elements found in these dependent claims.

b.) Rejection of claim 3 as unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the Denison et al. reference, U.S. Patent No: 4,095,865.

- Claim 3

Claim 3 was improperly rejected as obvious over the Moore reference in view of the Denison et al. reference. No *prima facie* case of obviousness has been established. As previously discussed in the Appeal Brief, claim 3 directly depends from independent claim 1 and is patentable over the Moore reference for the reasons discussed above as well as for the additional, unique elements found in this dependent claim. The Denison et al. reference provides no additional disclosure that would obviate the deficiencies of the Moore reference.

c.) Rejection of claims 6, 7, 10, 12, 13, 15 and 16 as unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the McHugh et al. reference, U.S. Patent No: 5,954,136.

- Claims 6, 7, 10, 12, 13, 15 and 16

Claims 6, 7, 10, 12, 13, 15 and 16 were improperly rejected as obvious over the Moore reference in view of the McHugh et al. reference. No *prima facie* case of obviousness has been established. As discussed previously in the Appeal Brief, the McHugh reference is relied on as disclosing a tubing system to suspend and power an ESP within a wellbore. However, nothing in the McHugh reference supplements the disclosure of the Moore reference in a manner that would render obvious that which is claimed in independent claim 10. For example, the cited references, taken alone or in combination, do not disclose or suggest positioning an electric cable within a conduit such that the electric cable contacts an interior surface of the conduit at a plurality of locations with "the plurality of locations being positioned to provide uniform support along the length of the conduit" as recited in independent claim 10.

Claims 6, 7, 12, 13, 15 and 16 ultimately depend from one of the independent claims 1, 10 and 14 and are patentable over the cited references for the reasons discussed above with respect to their corresponding independent claims as well as for additional, unique elements found in these dependent claims. The McHugh reference provides no additional disclosure that would obviate the deficiencies of the Moore reference.

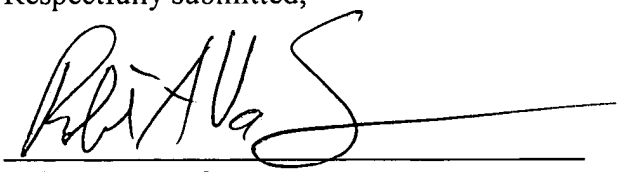
d.) Rejection of claim 11 as unpatentable under 35 U.S.C. § 103(a) as obvious over the Moore reference in view of the McHugh et al. reference and further in view of the Denison et al. reference.

- Claim 11

Claim 11 was improperly rejected as obvious over the Moore reference in view of the Denison et al. reference. No *prima facie* case of obviousness has been established. As discussed previously in the Appeal Brief, claim 11 directly depends from independent claim 10 and is patentable over the Moore reference for the reasons discussed above with respect to independent claim 10 as well as for the additional, unique elements found in claim 11. The McHugh et al. and Denison et al. references provide no additional disclosure that would obviate the deficiencies of the Moore reference.

In view of the above remarks, Applicant respectfully submits the Examiner has provided no supportable position or evidence that any of the claims 1-16 and 25-32 are anticipated under 35 U.S.C. § 102(b) or obvious under 35 U.S.C. § 103(a). Accordingly, Applicant respectfully requests that the Board find claims 1-16 and 25-32 patentable over the art of record, withdraw all outstanding rejections, and allow claims 1-16 and 25-32.

Respectfully submitted,



Date: May 8, 2008

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8. CLAIMS APPENDIX

1. A conduit for suspension in a wellbore, comprising:

a length of conduit; and

a cable inserted into the conduit, the cable having buckles, each buckle adapted to contact an interior surface of the conduit at a plurality of locations across substantially the entire length of conduit to prevent longitudinal movement of the cable within the conduit, wherein the cable is uniformly supported along the length of the conduit.

2. The conduit of claim 1, wherein the cable directly contacts the interior surface of the conduit.

3. The conduit of claim 1, wherein the conduit comprises a plurality of lengths of jointed tubing.

4. The conduit of claim 1, wherein the conduit comprises a length of coiled tubing.

5. The conduit of claim 1, wherein the cable is an electric power cable.

6. The conduit of claim 5, further comprising an electric submergible pumping system operatively connected to one end of the electric power cable.

7. The conduit of claim 6, wherein the electric submergible pumping system is connected to one end of the conduit.

8. The conduit of claim 1, wherein a compressive force on the cable is less than a total weight of the cable.

9. The conduit of claim 1, wherein the cable buckles to form a substantially uniform helix or sinusoid within substantially the entire length of conduit.

10. An electric submergible pumping system, comprising:

a length of conduit for suspension within a wellbore;

a pump operatively connected to an electric motor, with the pump connected to one end of the conduit; and

an electric cable disposed within the conduit, the electric cable defining an arcuate path along substantially the entire length of conduit such that the electric cable buckles and contacts an interior surface of the conduit at a plurality of locations to prevent longitudinal movement of the electric cable within the conduit, the plurality of locations being positioned to provide uniform support along the length of the conduit.

11. The electric submergible pumping system of claim 10, wherein the conduit comprises a plurality of lengths of jointed tubing.

12. The electric submergible pumping system of claim 10, wherein the conduit comprises a length of coiled tubing.

13. The electric submergible pumping system of claim 10, wherein the electric cable is disposed within the conduit at a surface location.

14. A method of installing a cable within a length of conduit at a location above the wellhead, comprising:

inserting a first length of cable into the length of conduit, the first length of cable being substantially equal to the length of conduit;

inserting a second length of cable into the length of conduit such that the cable buckles and contacts an interior surface of the conduit at a plurality of locations across substantially the entire length of conduit to prevent longitudinal movement of the cable within the conduit; and

uniformly supporting the second length of cable along the length of the conduit via contact at the plurality of locations.

15. The method of claim 14, further comprising:

connecting an electric submergible pumping system to one end of the conduit.

16. The method of claim 15, further comprising:

operatively connecting one end of the cable to an electric motor of the electric submergible pumping system.

25. A method of installing a cable within a length of conduit during fabrication of the conduit, comprising:

rolling a strip of metal to create a length of tubular material;

inserting a length of cable into the tubular material, wherein the cable buckles and contacts an interior surface of the tubular material at a plurality of locations across substantially the entire length of tubular material to prevent longitudinal movement of the cable within the tubular material;

controlling the positioning of the plurality of locations to provide uniform support of the length of cable along the tubular material when the tubular material is placed in a generally vertical orientation; and

sealing the tubular material to create a conduit having a buckled cable disposed therein.

26. The method of claim 25, wherein sealing the tubular member comprises:

welding and annealing the tubular material.

27. A method of installing a cable within a conduit, comprising:

inserting the cable into the conduit prior to deploying the conduit into a well, the cable having a length greater than a length of the conduit;

distributing the cable substantially evenly within the conduit; and

forming contact between the cable and the conduit to support the cable in the conduit.

28. The method of claim 27, wherein the cable buckles to define an arcuate path within the conduit and contacts an interior surface of the conduit at a plurality of locations across

substantially the entire length of conduit to prevent longitudinal movement of the cable within the conduit.

29. The method of claim 28, wherein a least a portion of the cable defines a helical path within the conduit.

30. The method of claim 27, wherein the difference between the length of cable and the length of conduit is substantially equal to or greater than 0.5 feet of cable per 1000 feet of conduit.

31. The method of claim 27, further comprising:

deploying the conduit in a well, wherein the distribution of cable within the conduit remains substantially even.

32. A conduit having a length, comprising:

a cable arranged within the conduit, the cable having a length that is greater than the length of the conduit, the cable being substantially evenly distributed within the conduit to create contact between the cable and the conduit in a manner that provides uniform support of the cable along the length of the conduit.

9. EVIDENCE APPENDIX

Not Applicable

10. RELATED PROCEEDINGS APPENDIX

Not Applicable